Claims:

1. An analyser for measuring at frequencies within a frequency range the response of an electronic device to a high frequency input signal, the analyser including:

an active load pull circuit connectable in use to a device to be analysed, the active load pull circuit including

a feedback circuit arranged (i) to receive an output signal from the device to be analysed, (ii) to modify the signal and (iii) to feed the modified signal back to the device to be analysed, wherein

the feedback circuit is arranged to limit the magnitude gain of the feedback circuit at all frequencies within the frequency range.

2. An analyser according to claim 1, wherein the analyser is so arranged that the magnitude gain of the feedback circuit at one or more frequencies within the frequency range is able to be adjusted.

3. An analyser according to claim 1 or claim 2, wherein the analyser is so arranged that the phase change effected by the feedback circuit at one or more frequencies within the frequency range is able to be adjusted.

4. An analyser according to any preceding claim, wherein the feedback circuit is arranged to restrict the phase change effected by the feedback circuit at all frequencies within the frequency range.

5. An analyser according to any preceding claim, wherein the feedback circuit is so arranged that it acts as a band filter having a bandwidth covering frequencies within the range.

6. An analyser according to any preceding claim, wherein

the analyser includes a high frequency band filter circuit arranged to filter signals in or from the feedback circuit before they are fed back to the device, the band filter circuit having a bandwidth covering frequencies within the range.

7. An analyser according to claim 5 or claim 6, wherein the feedback circuit is so arranged that it acts as a band filter having a bandwidth of greater than 10 MHz.

8. An analyser according to any preceding claim, wherein the feedback circuit includes a heterodyne filter ring circuit.

9. An analyser according to claim 8, wherein the heterodyne filter ring circuit includes a first mixer, a second mixer, and a signal-modifying unit, the heterodyne filter ring circuit being so arranged that in use it receives an input at the first mixer together with a signal having a preselected frequency, and the output from the first mixer is sent via the signal-modifying unit to the second mixer, where it is combined with a signal having a frequency equal to the preselected frequency to produce the output signal of the heterodyne filter ring circuit.

10. An analyser according to any preceding claim, wherein the feedback circuit includes a signal processor able in use to modify the signal from the device to be analysed by a preselectable amount.

11. An analyser according to claim 10, wherein the signal processor is arranged to process respective signals representative of the I and Q values of a signal.

12. An analyser according to any preceding claim, wherein the analyser includes a signal generator arranged to send an input signal to the device to be analysed.

13. An analyser according to any preceding claim, wherein the analyser includes a signal measuring device for measuring loads arising in response to the signals applied to the device to be analysed.

14. An active load pull circuit for use in an analyser for measuring at frequencies within a frequency range the response of an electronic device to a high frequency input signal, the active load pull circuit being connectable in use to a device to be analysed and including a feedback circuit arranged to receive an output signal from the device to be analysed, to modify the signal and to feed the modified signal back to the device to be analysed, wherein the feedback circuit is arranged to limit the magnitude gain of the feedback circuit at all frequencies within the frequency range.

15. An active load pull circuit according to claim 14, wherein the active load pull circuit includes the features of the active load pull circuit of the analyser as claimed in any of claims 2 to 11.

16. A method of measuring the response of an electronic device to a high frequency input signal, the method including the steps of:

providing an electronic device to be analysed,

applying a high frequency signal to the device, and

modifying an output signal from the device and then feeding the modified signal back to the device, thereby forming a feedback loop, and

measuring, at a plurality of frequencies within a frequency range, the response of the device to the signal applied to the device,

wherein the magnitude gain of the feedback loop is limited at frequencies within the frequency range.

17. A method according to claim 16, wherein the phase change effected by the feedback loop is restricted at frequencies within the frequency range.

18. A method according to claim 16 or claim 17, wherein the method includes a step of preselecting the way in which the output signal from the device is modified.

19. A method according to claim 18, wherein the method includes a step of preselecting a magnitude gain applied to the output signal from the device.

20. A method according to claim 18 or claim 19, wherein the method includes a step of preselecting a phase change applied to the output signal from the device.

21. A method according to any of claims 16 to 20, wherein the step of modifying the output signal from the device includes filtering out signals having frequencies outside a band of frequencies covering frequencies within the frequency range.

22. A method according to any of claims 16 to 21, wherein the fundamental frequency of the signal applied to the device is over 1 GHz.

23. A method according to any of claims 16 to 22, wherein the method is repeated and performed in respect of a multiplicity of different modifications of the output signal from the device.

24. A method according to any of claims 16 to 23, wherein the method is repeated and performed in respect of a multiplicity of different input signals applied to the device.

25. A method of calibrating an analyser according to any

of claims 1 to 15 or calibrating the method of any of claims 16 to 24, wherein the calibration method comprising repeating the following steps for a multiplicity of different loads:

applying a high frequency signal at the input of the feedback loop or feedback circuit, and

modifying the applied high frequency signal and feeding the modified signal back to the input to synthesise a load,

measuring, at a plurality of frequencies within a frequency range, the modified signal at the input,

calculating the load represented by the feedback loop or feedback circuit in response to the particular modification made to the applied signal, and storing electronically the results of the measurements against the modifications to the signal.

26. A method according to any of claims 16 to 24, wherein the method includes performing a calibration according to claim 25, so that predetermined loads may be applied at the output of the device by selecting an appropriate modification during the step of modifying the signal in accordance with the electronically stored measurements.

27. A method according to any of claims 16 to 26, wherein the method is performed with an analyser as claimed in any of claims 1 to 15.

28. A method of improving the design of a high frequency high power device or a circuit including a high frequency high power device, the method including the steps of analysing the behaviour of the device either by using the analyser of any of claims 1 to 15 or by performing the method of any of claims 16 to 24 or 26, and then modifying the design of the device or modifying the circuit including the device in consideration of the results of the analysing of the behaviour of the device.

29. A method of manufacturing a high frequency high power device or a circuit including a high frequency high power device, the method including the steps of improving the design of a similar existing device or of an existing circuit including such a device by performing the method of claim 28 and then manufacturing the device or the circuit including the device in accordance with the improved design.